Title: Partitioning Modules For Cross-Module Optimization
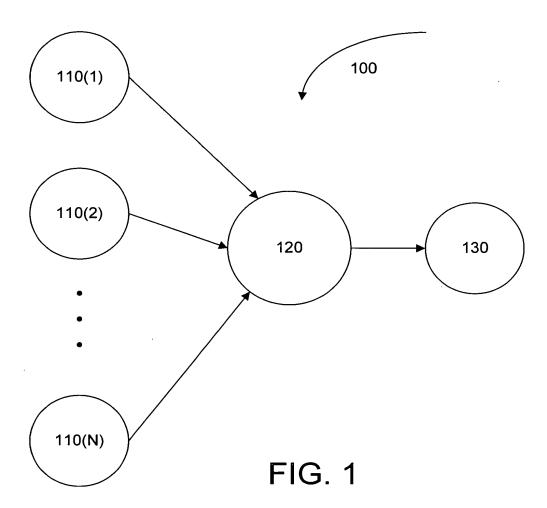Inventor: XinLiang David Li et al.
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FIG. 1

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FIG. 2

Title: Partitioning Modules For Cross-Module Optimization
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300

Select a percentage
value M
(304)

Acquire affinity
weights between
modules
(308)

Calculate the total
weight TW
(312)

Calculate the
percentage total
weight PTW
(316)

Sort the weights in a
descending order
(320)

Determine the sum
weight SW
(324)

Determine the weight
threshold WT
(328)

Partition the N
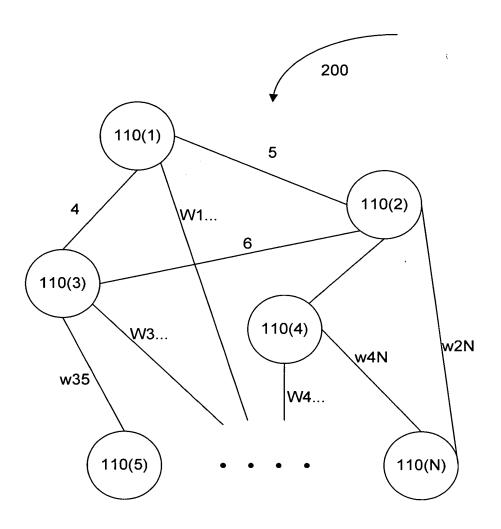modules based on the
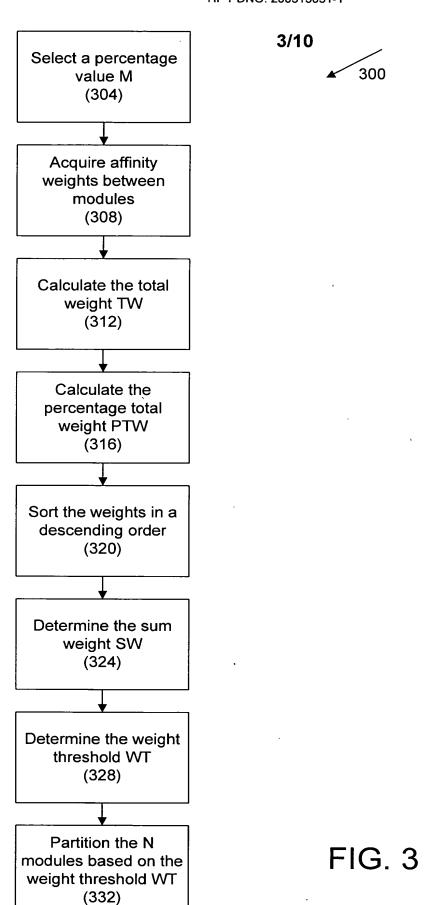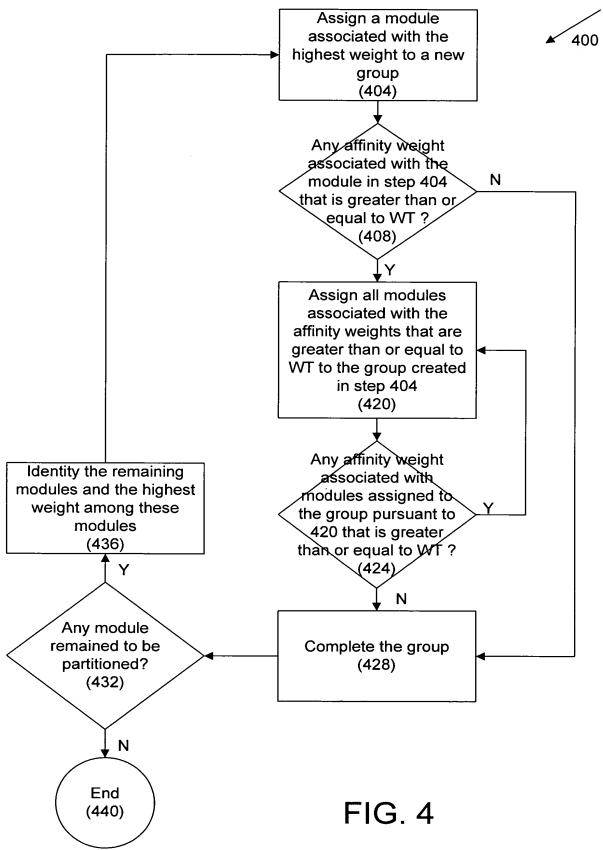weight threshold WT
(332)

FIG. 3

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```
                                    ┌──────────────────────┐
                                    │   Assign a module    │
                                    │  associated with the │      ↙ 400
                                    │ highest weight to a new │
                                    │        group         │
                                    │        (404)         │
                                    └──────────────────────┘
                                              │
                                              ▼
                                    ╱─────────────────────╲
                                   ╱   Any affinity weight  ╲
                                  ╱  associated with the     ╲     N
                                 ╱  module in step 404        ╲──────────┐
                                 ╲  that is greater than or   ╱          │
                                  ╲   equal to WT ?          ╱           │
                                   ╲       (408)            ╱            │
                                    ╲─────────────────────╱             │
                                              │ Y                        │
                                              ▼                          │
                                    ┌──────────────────────┐            │
                                    │   Assign all modules  │            │
                                    │   associated with the │            │
                                    │  affinity weights that are │       │
                                    │  greater than or equal to │ ◄──┐   │
                                    │  WT to the group created  │    │   │
                                    │     in step 404           │    │   │
                                    │        (420)              │    │   │
                                    └──────────────────────┘        │   │
                                              │                      │   │
                                              ▼                      │   │
                                    ╱─────────────────────╲          │   │
                                   ╱   Any affinity weight  ╲         │   │
┌────────────────────┐           ╱  associated with         ╲    Y   │   │
│ Identity the remaining │      ╱  modules assigned to        ╲──────┘   │
│ modules and the highest │     ╲  the group pursuant to      ╱          │
│ weight among these │          ╲  420 that is greater       ╱           │
│     modules        │           ╲  than or equal to WT ?   ╱            │
│       (436)        │            ╲       (424)            ╱             │
└────────────────────┘             ╲─────────────────────╱              │
          │ Y                                 │ N                        │
          │                                   ▼                          │
    ╱─────────────╲                 ┌──────────────────────┐            │
   ╱  Any module   ╲                │                      │            │
  ╱  remained to be ╲               │  Complete the group  │ ◄──────────┘
  ╲  partitioned?   ╱ ◄─────────────│        (428)         │
   ╲    (432)      ╱                │                      │
    ╲─────────────╱                 └──────────────────────┘
          │ N
          ▼
    ╱─────────╲
   ╱   End     ╲
   ╲   (440)   ╱
    ╲─────────╱
```

FIG. 4

Title: Partitioning Modules For Cross-Module Optimization
Inventor: XinLiang David Li et al.
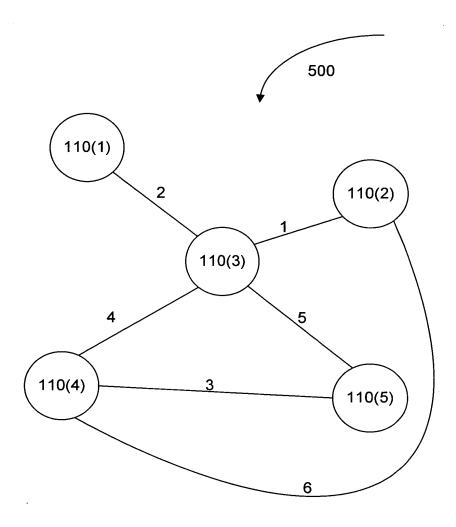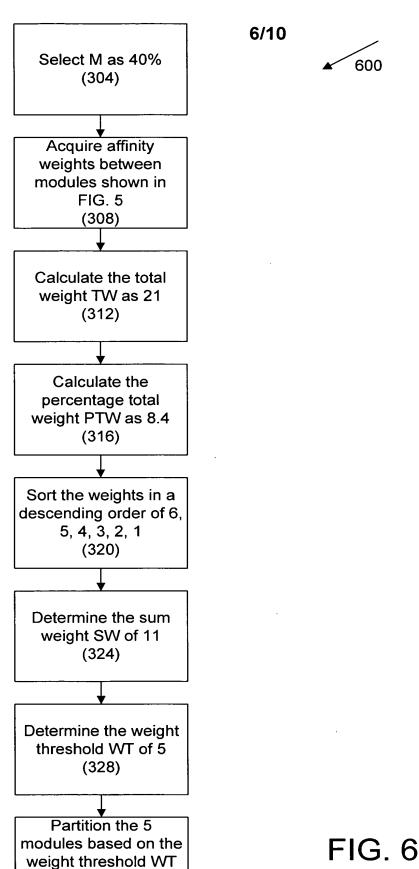USPTO App. No.: not yet assigned
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FIG. 5

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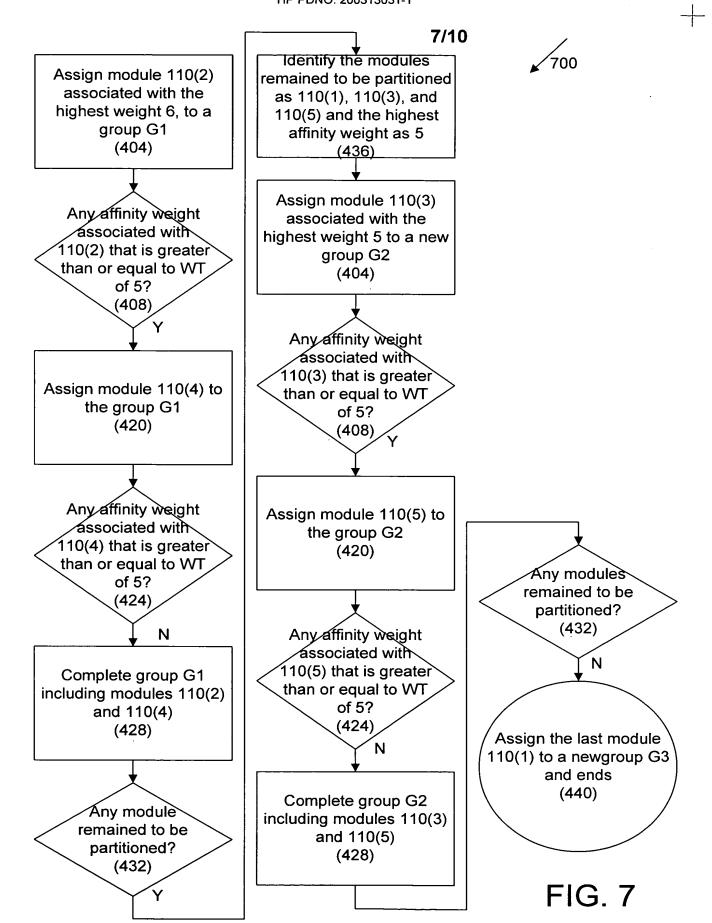**6/10**

600

Select M as 40%
(304)

↓

Acquire affinity
weights between
modules shown in
FIG. 5
(308)

↓

Calculate the total
weight TW as 21
(312)

↓

Calculate the
percentage total
weight PTW as 8.4
(316)

↓

Sort the weights in a
descending order of 6,
5, 4, 3, 2, 1
(320)

↓

Determine the sum
weight SW of 11
(324)

↓

Determine the weight
threshold WT of 5
(328)

↓

Partition the 5
modules based on the
weight threshold WT
of 5
(332)

FIG. 6

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700

Assign module 110(2) associated with the highest weight 6, to a group G1 (404)

Any affinity weight associated with 110(2) that is greater than or equal to WT of 5? (408)

Y

Assign module 110(4) to the group G1 (420)

Any affinity weight associated with 110(4) that is greater than or equal to WT of 5? (424)

N

Complete group G1 including modules 110(2) and 110(4) (428)

Any module remained to be partitioned? (432)

Y

Identify the modules remained to be partitioned as 110(1), 110(3), and 110(5) and the highest affinity weight as 5 (436)

Assign module 110(3) associated with the highest weight 5 to a new group G2 (404)

Any affinity weight associated with 110(3) that is greater than or equal to WT of 5? (408)

Y

Assign module 110(5) to the group G2 (420)

Any affinity weight associated with 110(5) that is greater than or equal to WT of 5? (424)

N

Complete group G2 including modules 110(3) and 110(5) (428)

Any modules remained to be partitioned? (432)

N

Assign the last module 110(1) to a newgroup G3 and ends (440)

FIG. 7

Title: Partitioning Modules For Cross-Module Optimization
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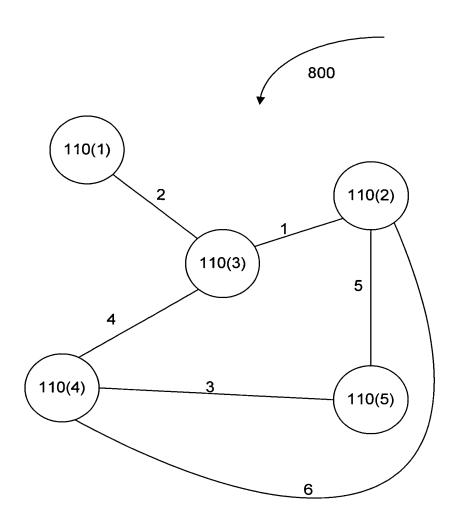USPTO App. No.: not yet assigned
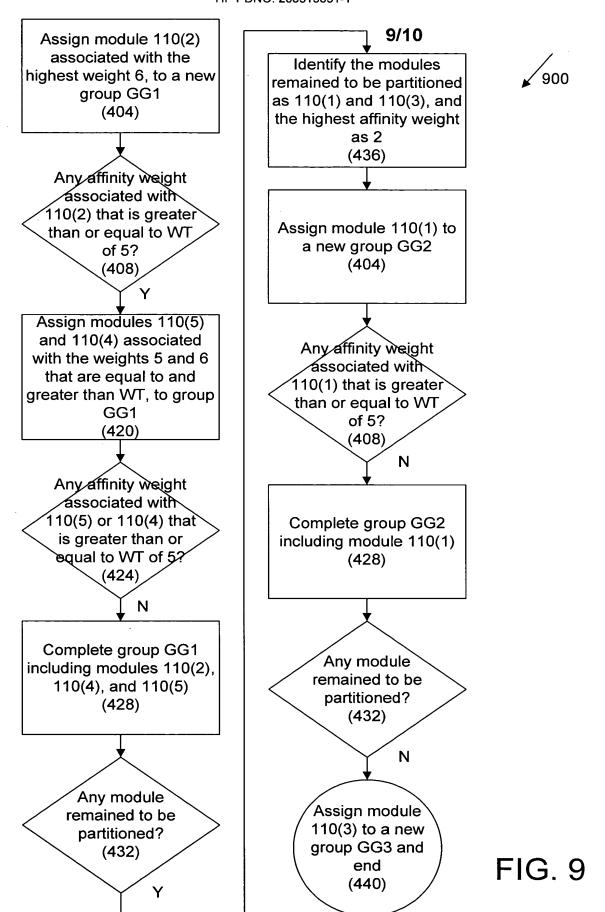HP PDNO: 200313031-1

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FIG. 8

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900

Assign module 110(2) associated with the highest weight 6, to a new group GG1
(404)

Any affinity weight associated with 110(2) that is greater than or equal to WT of 5?
(408)

Y

Assign modules 110(5) and 110(4) associated with the weights 5 and 6 that are equal to and greater than WT, to group GG1
(420)

Any affinity weight associated with 110(5) or 110(4) that is greater than or equal to WT of 5?
(424)

N

Complete group GG1 including modules 110(2), 110(4), and 110(5)
(428)

Any module remained to be partitioned?
(432)

Y

Identify the modules remained to be partitioned as 110(1) and 110(3), and the highest affinity weight as 2
(436)

Assign module 110(1) to a new group GG2
(404)

Any affinity weight associated with 110(1) that is greater than or equal to WT of 5?
(408)

N

Complete group GG2 including module 110(1)
(428)

Any module remained to be partitioned?
(432)

N

Assign module 110(3) to a new group GG3 and end
(440)

FIG. 9

Title: Partitioning Modules For Cross-Module Optimization
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FIG. 10